



Tennessee Valley Authority, 1101 Market Street, Chattanooga, TN 37402

CNL-16-199

December 8, 2016

10 CFR 2.101
10 CFR 52.15

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Clinch River Nuclear Site
NRC Project No. 785

Subject: Submittal of Supplemental Information Regarding Hydrology in Support of Early Site Permit Application for Clinch River Nuclear Site

- References:
1. Letter from TVA to NRC, CNL-16-081, "Application for Early Site Permit for Clinch River Nuclear Site," dated May 12, 2016
 2. Letter from TVA to NRC, CNL-16-134, "Schedule for Submittal of Supplemental Information in Support of Early Site Permit Application for Clinch River Nuclear Site," dated August 11, 2016
 3. Letter from TVA to NRC, CNL-16-157, "Submittal of Groundwater Calculation Input and Output Files in Support of Early Site Permit Application for Clinch River Nuclear Site," dated September 30, 2016

By letter dated May 12, 2016 (Reference 1), Tennessee Valley Authority (TVA) submitted an application for an early site permit for the Clinch River Nuclear (CRN) Site in Oak Ridge, TN. In addition, and consistent with interactions with NRC staff, TVA identified certain aspects of the application that it intends to supplement. By letter dated August 11, 2016 (Reference 2), TVA provided a plan for submitting the identified supplemental information. By letter dated September 30, 2016 (Reference 3), TVA provided input and output files associated with the calculations used to develop the groundwater model.

The enclosure to this letter contains a discussion of the supplemental information related to the hydrology of the CRN Site, as identified in Reference 2.

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There are no new regulatory commitments associated with this submittal. If any additional information is needed, please contact Dan Stout at (423) 751-7642.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 8th day of December 2016.

Respectfully,

J. W. Shea
Digitally signed by J. W. Shea
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J. W. Shea
Vice President, Nuclear Licensing

Enclosure:

Supplemental Information Regarding Clinch River Nuclear Site Hydrology

cc (with enclosures):

A. Fetter, Project Manager, Division of New Reactor Licensing, USNRC

cc (without enclosures):

V. McCree, Executive Director of Operations, USNRC
C. Haney, Regional Administrator, Region II, USNRC
M. Johnson, Deputy Executive Director for Reactor and Preparedness Programs,
USNRC
V. Ordaz, Acting Director, Office of New Reactors, USNRC
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ENCLOSURE

Supplemental Information Regarding Clinch River Nuclear Site Hydrology

By letter dated May 12, 2016 (Reference 1), Tennessee Valley Authority (TVA) submitted an application for an early site permit for the Clinch River Nuclear (CRN) Site in Oak Ridge, TN. In addition, and consistent with interactions with NRC staff, TVA identified certain aspects of the application that it intends to supplement. By letter dated August 11, 2016 (Reference 2), TVA provided a plan for submitting the identified supplemental information.

This enclosure contains supplemental information related to the hydrology of the CRN Site.

Supplement Item (from Reference 2)

In addition, TVA will provide the following:

- *Markups of applicable [early site permit application] ESPA sections that support an evaluation of the aquifer parameter and characterization of the groundwater flow system,*
- *Input and output files used to characterize the radionuclide transport, including how existing and likely future surface and groundwater users effects these parameters groundwater gradients, flow directions and velocities and, decay calculations for potential radionuclide pathways in the groundwater system under accidental conditions, and*
- *Markups of applicable ESPA sections describing the basis and assumptions used in developing the source term, radionuclide distributions and concentrations to ensure that the highest potential radioactive material inventory is selected among the expected types of liquid and wet waste streams processed by plant systems.*

Supplemental Information

On August 3, 2016, TVA made several analyses and calculations related to the aquifer parameter, characterization of the groundwater flow system, and characterization of radionuclide transport for the CRN Site available to the NRC staff for audit. By letter dated September 30, 2016 (Reference 3), TVA submitted input and output files associated with the calculations used to develop the groundwater model. By letter dated December 2, 2016 (Reference 4), TVA provided supplemental information to clarify the basis and assumptions used in developing the source term, radionuclide distributions and concentrations of liquid and gaseous releases, including markups of the applicable Site Safety Analysis Report (SSAR) sections.

Subsequent to TVA providing the plan for submitting markups of the applicable portions of the early site permit application (ESPA) (Reference 2), TVA verified that the key assumptions and the methodology for the groundwater analysis are included in CRN Site ESPA, SSAR Subsection 2.4.12 and associated Appendices A, B, and C. Therefore, no changes to the ESPA are required with regard to describing the key assumptions made in the groundwater analysis.

ENCLOSURE

Supplemental Information Regarding Clinch River Nuclear Site Hydrology

References:

1. Letter from TVA to NRC, CNL-16-081, "Application for Early Site Permit for Clinch River Nuclear Site," dated May 12, 2016
2. Letter from TVA to NRC, CNL-16-134, "Schedule for Submittal of Supplemental Information in Support of Early Site Permit Application for Clinch River Nuclear Site," dated August 11, 2016
3. Letter from TVA to NRC, CNL-16-157, "Submittal of Groundwater Calculation Input and Output Files in Support of Early Site Permit Application for Clinch River Nuclear Site," dated September 30, 2016
4. Letter from TVA to NRC, CNL-16-191, "Submittal of Supplemental Information Regarding Radiation Protection and Accident Consequences in Support of Early Site Permit Application for Clinch River Nuclear Site," dated December 2, 2016